APPENDIX C

MATERIALS SOURCES

The following types of plumbing devices are commonly used in stockwater pipeline systems. The specific brands and models listed are examples of commonly used items, and do not represent a comprehensive listing. Other acceptable devices, brands, and models may be available. This list will be updated as alternative devices are brought to the attention of the SCS Engineering Staff Agricultural Engineer as listed in the Preface to this Manual.

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C1 VALVES

C1.1 Air-Release Valves (1-way air release valve)

Continuous acting valves that have a small venting orifice generally range between 1/16 and 3/8 inch in size. This type of valve releases pockets of air from the pipeline once the line is filled and under working pressure. These devices require venting to the atmosphere. They periodically dispense small amounts of water during normal operation so provisions must be made to dispose of such water.

Brand Name	Model No	Inlet Size (in)	Orifice Size (in)	Maximum Pressure	Price Range
Apco	50	1/2, 3/4, 1	3/32	150	< $50
Apco	55	1/2	3/32	150	< $100
Apco	65	3/4	1/8	150	< $100
Apco	50	1/2, 3/4, 1	1/16	300	< $50
Apco	200A	1, 2	3/16	150	< $150
Apco	200A	1, 2	3/32	300	< $150
Val-Matic	15	1/2, 3/4, 1	1/16	175	< $100
Val-Matic	22	1/2, 3/4, 1	3/32	175	< $150
Val-Matic	25	3/4, 1	1/8	150	< $150
Val-Matic	25	3/4, 1	5/64	300	< $150
Val-Matic	38	1, 2	3/16	150	< $200
Val-Matic	38	1, 2	3/32	300	< $180
Bermad	4405	1		170	< $100
Waterman	Cav-6	1		150	< $100
Western	WAAV-4405	1		180	
Hoffman	78			150	

C1.2 Air-and-Vacuum Valve (2-way valve)

These valves have a large venting orifice, exhaust large quantities of air from the pipeline during filling operations, allow air to re-enter the line, and prevent a vacuum from forming during emptying. These valves are not continuous acting because they do not allow further escape of air at working pressure once the valves closes. These devices require venting to the atmosphere. They periodically dispense small amounts of water during normal operation, so provisions must be made to dispose of such water.

Brand Name	Model No	Inlet Size (in)	Orifice Size (in)	Maximum Pressure	Price Range
Apco	141	1/2	1/2	300	< $100
Apco	142	1	1	300	< $150
Apco	144	2	2	150	< $200
Val-Matic	100	1/2	1/2	150/300	< $200
Val-Matic	101	1	1	150/300	< $200
Val-Matic	102	2	2	150/300	< $350
Bermad	4420	2	-	170	< $150
Waterman	AV-150	1-1/2, 2	-	150	< $50
Waterman	AVP-1	1	Plastic	110	
Western	WKAV-4420	2		250	

C1.3 Air-Vacuum-Air Release Valve (3-way valve)

Three-way valves combine the functions of the previous two valves. These devices require venting to the atmosphere. They periodically dispense small amounts of water during normal operation. Provision must be made to dispose of such water.

Brand Name	Model No	Inlet Size (in)	Orifice Size (in)	Maximum Pressure	Price Range
Apco	143C	1	1 & 5/64	300	< $200
Apco	145C	2	2 & 3/32	300	< $300
Val-Matic	201C	1	1 & 5/64	300	< $300
Val-Matic	202C	2	2 & 3/32	300	< $450
Bermad	4415	2	- -	170	< $200
Waterman	CRP8	1	Plastic	85	< $50
Waterman	CRP8	2	- -	100	< $100
Waterman	AVR-2	3/4, 1 1-1/4, 1-1/2	2 & 1/8	150	< $300
Watermen	CR-100	2	2 & 1/16	100	< $150
Western	WDPAV-4415	2		250	

C1.4 Pressure Reducing Valve

Pressure reducing valves reduce pressure to pipelines, hydrants, float valves, etc. Access to the valve is required for adjustment and maintenance.

Brand Name	Model No	Size (in)	Note	Maximum Operating Pressure (1)
Jordan	Mark 60, 61	1/2, 2	(2)	300+
Watts	U5B	1/2, 2	(2)	300
Wilkins	600	1/2, 2	(2)	300
Amtrol	100UBT	1/2, 2		250
Cash-Acme	Type E, Series 3	1/2, 2	(2)	300
Bermad	PRV 150	1/2	(2)	160

C1.5 Pressure Relief Valve

Keeps pressure in pipelines at a safe value when a pump pressure switch or pressure reducer valve malfunctions.

Brand Name	Model No	Size (in)	Note	Maximum Operating Pressure (1)
Kunkle	Liquid		(2)	300
Watts	174-A		(2)	160
Cash-Acme	FWC	1/2, 3/4		175
Waterman	AA-6a	2		120
Waterman	AA-6b	2		120

C1.6 Flow Rate Controller

This type of valve controls flow rate in a pipeline. It is usually used near a pump to control surge pressures during pump start up in long pipelines with remote pressure tanks.

Brand Name	Model No	Size (in)	Note	Maximum Operating Pressure (1)
Kates (adjustable)	4FA	1 – 1/2		150 & 300
Harvard (non-adjustable	DV			200
Griswald (non-adjustable)	Varies	3/4 - 3		128
Dole (non-adjustable)	GX	1		125

C1.7 Flow Controlled Pressure Valve/Switch

Brand Name	Model No	Size (in)	Note	Maximum Operating Pressure
Red Jacket	Hydroservant I	20 gpm		

C2 SURGE SUPPRESSOR

These devices are diaphragm-type water shock arresters. They are located near the pump when pressure tank is not used at the pump. When ordering certain models, it is necessary to specify the operating pressure range. This will allow pre-charging to the proper pressure. If needed, more than one arrester can be used at a site.

Brand Name	Model No	Size (in)	Note	Maximum Operating Pressure (1)
Greer Hydraulics	SurgeKushon	2 to 10 gal		275
Myers	12-CU		(4) (5)	200
Hydrotrol	5000	3/4" – 2”	(4) (5)	150
Hammertrol	506	1”	(4) (5)	150
Watts	150		(4) (5)	125
Mini-Trol	500	1/2"	(4) (5)	125

C3 PRESSURE TANKS

Brand Name	Model No	Size (gal)	Note	Maximum Operating Pressure (1)
Con-Aire	CA	15-220		
Wel-X-Trol	WX	2-119		100 to 150
Myers		2-96		100
Well Mate	WM	20-115	(fiberglass)	100 to 125
AO Smith, Aqua Air	V	2-85		100
Clayton Mark	CM	2-109		100
Whitewater		40-1500		100

NOTES

(1) These are maximum operating pressures as listed by the manufacturer for the particular model listed. These pressures should not be exceeded.

(2) Specify pressure and flow range when ordering.

(3) When ordering certain models, it is necessary to specify the operating pressure range. This will allow pre-charging to the proper pressure.

(4) It is difficult to determine the amount of water hammer protection needed. If one does not solve the problem, a second or third suppressor may be added. Some brands are also available in several sizes. Larger sizes should be used where the water hammer problem is severe.

(5) These are small capacity suppressors and may not be adequate for long pipelines.